

Appl. No. 10/574,738
Amdt. Dated December 9, 2009
Reply to Office Action of July 9, 2009

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A liquid discharge device having a liquid discharge head in which a plurality of liquid discharge portions are arrayed on a substrate, each of said liquid discharge portions comprising:

a liquid chamber for storing a liquid to be discharged,

ejection force supplying means disposed within said liquid chamber, for providing the liquid within said liquid chamber with ejection force, and

a nozzle for discharging the liquid stored in said liquid chamber by actions of said ejection force supplying means,

said liquid discharge device further comprising:

individual channels, separated by barrier walls, provided for each of said liquid discharge portions so as to communicate with said respective liquid chamber and supply liquid to said respective liquid chamber; and

a contiguous common channel disposed across each of said plurality of individual channels so as to communicate with each of said plurality of individual channels and for supplying liquid to said plurality of individual channels;

said contiguous common channel being comprised of:

a first common channel portion provided at a liquid supply source side, and

a second common channel portion provided between said first common channel portion and said individual channels, and having liquid channel resistance greater than that of said first common channel portion, and further wherein the second common channel portion is in direct fluid

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communication with the individual channels, and the second common channel receives ink directly from the first common channel portion, wherein said second common channel portion is formed such that the channel resistance as to the movement direction of liquid to the plurality of individual channels with which said second common channel portion communicates is substantially constant.

2. (Previously Presented) The liquid discharge device according to Claim 1, wherein the channel cross-sectional area of said second common channel portion perpendicular to a supply direction of said liquid through said second common channel portion is formed smaller than the channel cross-sectional area of said first common channel portion perpendicular to a supply direction of said liquid through said first common channel portion, thereby setting the channel resistance of said second common channel portion greater than the channel resistance of said first common channel portion.

3. (Previously Presented) The liquid discharge device according to Claim 1, wherein at least a part of said second common channel portion is comprised of at least a part of said liquid discharge head.

Claim 4. (Cancelled).

5. (Previously Presented) The liquid discharge device according to Claim 1, wherein a plurality of said liquid discharge heads are provided, and said second common channel portion of said plurality of said liquid discharge heads is formed so as to have substantially constant channel resistance.

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6. (Previously Presented) The liquid discharge device according to Claim 1, wherein said second common channel portion is formed so as to have generally the same channel flow direction as said individual channels.

7. (Previously Presented) The liquid discharge device according to Claim 1, wherein at least a part of a wall comprising said second common channel portion is a face of said substrate where said individual channels are provided.

8. (Previously Presented) The liquid discharge device according to Claim 1, wherein at least a part of a wall comprising said second common channel portion is said substrate where said individual channels are provided, and further is formed of a same material as the material comprising said liquid discharge portions or said individual channels.

9. (Previously Presented) The liquid discharge device according to Claim 1, wherein said substrate has a face perpendicular to or generally perpendicular to a face where said individual channels are provided, and at least a part of a wall comprising said second common channel portion is said perpendicular or generally perpendicular face.

10. (Previously Presented) The liquid discharge device according to Claim 1, wherein at least a part of a wall comprising said second common channel portion is a face of said substrate where said individual channels are provided, and wherein said substrate has a face perpendicular to or generally perpendicular to a face where said individual channels are provided, with at least a different part of a wall comprising said second common channel portion is said perpendicular or

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generally perpendicular face.

11. (Previously Presented) The liquid discharge device according to Claim 1, wherein pillars are formed in said second common channel portion.
12. (Previously Presented) The liquid discharge device according to Claim 1, wherein a flow direction of liquid in the entire length of the second common channel portion is perpendicular to a flow direction of liquid in said individual channels.
13. (Previously Presented) The liquid discharge device according to Claim 2, wherein a flow direction of liquid in the entire length of the second common channel portion is perpendicular to a flow direction of liquid in said individual channels.
14. (Previously Presented) The liquid discharge device according to Claim 1, wherein a flow direction of liquid in a first part of the second common channel portion is perpendicular to a flow direction of liquid in said individual channels, and a flow direction of liquid in a second part of the second common channel portion is parallel to a flow direction of liquid in said individual channels.
15. (Previously Presented) The liquid discharge device according to Claim 2, wherein a flow direction of liquid in a first part of the second common channel portion is perpendicular to a flow

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direction of liquid in said individual channels, and a flow direction of liquid in a second part of the second common channel portion is parallel to a flow direction of liquid in said individual channels.

16. (Previously Presented) The liquid discharge device according to Claim 14, wherein pillars are formed in said second part of said second common channel portion but not in said first part of said second common channel portion.

17. (Previously Presented) The liquid discharge device according to Claim 15, wherein pillars are formed in said second part of said second common channel portion but not in said first part of said second common channel portion.

18. (Previously Presented) The liquid discharge device according to Claim 1, wherein the second common channel portion is comprised of a portion that is located on the same substrate on which the barrier walls are formed for the individual channels and a height of the individual channels is greater than a height of the second common channel portion.